



# RESPONDERSAFETY

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## Overview & Purpose:

Practice safety principles at vehicle fires

## Topics:

- NFPA 1001
- PPE / high visibility apparel
- Safety at vehicle fire scenes

## Pre-Class Assignment:

Complete the following modules on [learning.respondersafety.com](http://learning.respondersafety.com). Bring certificates to class:

- Special Circumstances: Safe Operations for Vehicle Fires

Read our department's SOPs related to vehicle fires

## Materials:

- Department SOP handouts
- Copy of NFPA 1001
- PPE and high visibility apparel for all personnel
- Controlled training location for a vehicle fire suppression training exercise, including a vehicle to burn

## Learning Objectives:

- Understand the importance of donning PPE and establishing a traffic incident management area prior to commencing vehicle fire suppression operations
- Practice safety protocols at vehicle fire scenes
- Understand the unique issues with hybrid and electric vehicles
- Demonstrate how to process the vehicle post-fire and ensure safe removal

## NFPA 1001 JPRs:

- 5.3.3 Establish and operate in work areas at emergency scenes
- 5.3.7 Attack a passenger vehicle fire operating as a member of a team
- 6.4.1 Extricate a victim entrapped in a motor vehicle as part of a team



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## Correlations to Dept Training Rotations:

To be filled in by Instructor

## Related SOPs/SOGs:

Titles to be filled in by Instructor

## Introduction:

Introduce the topic of safe operations for vehicle fires:

- Show the TIM in a Minute video.
- Highlight the related 1001 JPRs.
- Discuss a case related to safety at a vehicle fire, local if possible. See Appendix A for suggested cases.

## SOP Review (10 min):

- Distribute a copy of the department's vehicle fires operations SOP. Review the SOP with the group. Discuss and answer questions about the expectations set by the SOP and the standard manual traffic control signals used by the department.

## Discussion (10 min):

Discuss pre-attack safety with the group:

- Don PPE
- Establish a traffic incident management area (TIMA) with appropriate large blocking vehicles (typically a fire engine parked upstream in an angled lane + 1 position; pump panel facing downstream, meaning the opposite side of oncoming traffic; a minimum of 100' from the involved vehicle to guard against explosion effects)
- Safe exit/entry from response vehicles (do not exit until blocking in place, exit on downstream side into protected work area, follow SOP for exit protocols, pass safely through zero buffer area)
- Secure the involved vehicle(s) including chocking wheels
- Maintain situational awareness, do not turn your back to traffic, always have at least two escape routes from your position



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## Exercises (30 min):

1. Assemble the group in an appropriate training location for a vehicle fire training exercise. Make the setup of a TIMA either part of the exercise prior to the fire or have the TIMA set up prior to the exercise.
2. During the exercise, require the team to operate as if they were at a vehicle fire scene within that TIMA. They should remain within the protected work area, practice safe exit/entry to response vehicles, secure the involved vehicle(s), and avoid turning their back to traffic. Encourage them to plan their escape routes from each position they take during the response. If they violate these safety procedures during the exercise, point that out as appropriate and make it part of the after action review debrief of the exercise.
3. Conduct the vehicle fire suppression training exercise according to department SOPs and teaching vehicle fire suppression tactics as you normally would. During the exercise, provide instruction on and emphasize safety procedures, including:
  - full scene assessment for hazards prior to suppression (traffic, weather, spills, victims, toxicity, explosion, high heat, projectiles, air bags, cargo).
  - a conservative approach when there is no life safety emergency
  - stabilize the vehicle
  - work as far back from the fire as possible
  - select an angle of approach clear of the typical linear paths of failed components that can become projectiles (bumpers, hood, trunk, and hatchback struts) -- typically a 45 degree angle from the uninvolved side of the vehicle
  - use the full reach of the straight hose stream to darken down the fire before approaching
  - advance from an upwind position if possible
  - work from the side when opening the trunk and engine compartments
  - be aware of spill hazard (fluids, cargo) and contain and mitigate following SOP
  - do not work close to the vehicle, especially in front of or behind it until after the fire is out and all surfaces are thoroughly cooled
4. After the fire is extinguished, review post-fire safety practices, including:
  - Slip and fall hazards of water and foam on road
  - Removal of vehicle contents may create debris hazard on road; if possible move vehicle off road to conduct overhaul
  - Conduct vehicle removal in accordance with regulations and SOP
  - Process any fatalities according to SOP and MOU with medical examiner
  - Coordinate with other agencies for investigation



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## Wrap Up (10 min):

Discuss the unique issues with hybrid and electric vehicles, including:

- High voltage battery (assume it is charged and energized)
- Off-gassing HV battery vapors are potentially toxic and flammable
- Be alert for signs of a lithium-ion battery fire (leaking fluids, increased temperature, gurgling sounds, popping or hissing noises from the battery compartment, smoke, flames, sparks). If a lithium-ion battery fire is suspected, vent the passenger area, remain alert for ignition, use large and sustained volumes of water
- Shock hazard from exposed electrical components
- Due to lack of engine noise, may be difficult to tell if the vehicle is running (always assume it is running and stay out of the travel path)
  - Remove key fob from vehicle and store it at least 25 feet from the vehicle
- Be vigilant for unusual odors or eye, nose, or throat irritation; evacuate upwind and uphill if detected
- If you must secure the vehicle manually, follow proper procedure (see RSLN vehicle fires module if you are not aware of the procedure)
- Contact an authorized service center or vehicle manufacturer before storing the vehicle

## Resources:

Additional resources available at:

[https://learning.respondersafety.com/Training\\_Programs/Special\\_Circumstances\\_Safe\\_Operations\\_for\\_Vehicle\\_Fires.aspx](https://learning.respondersafety.com/Training_Programs/Special_Circumstances_Safe_Operations_for_Vehicle_Fires.aspx)

NFPA's Alternative Fuel Vehicles Safety Training. National Fire Protection Association.

<https://www.nfpa.org/training-and-events/by-topic/alternative-fuel-vehicle-safety-training>



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## Appendix A: Suggested Case Studies

<http://fire.nationalnearmiss.org/Reports> and enter the search terms "vehicle fire"

<https://www.ocregister.com/2016/11/01/video-firefighter-injured-while-battling-car-fire-on-the-55-driver-arrested/>

<http://www.eveningtribune.com/news/20180524/recycling-center-car-fire-squelched-in-hornell>

<http://www.kcra.com/article/vehicle-fire-shuts-down-southbound-i-5-in-sacramento/20866942>

<http://www.abc17news.com/news/traffic-alert-semi-fire-shuts-down-part-of-i-70-westbound/746042154>

<http://www.centexproud.com/news/local/3-firefighters-injured-in-harker-heightsfire/1153227522>

<https://www.somersetlive.co.uk/news/somerset-news/m4-traffic-vehicle-fire-bath-1602444>

<http://www.myrtlebeachonline.com/news/local/article211021279.html>

<https://www.bloomberg.com/news/articles/2018-05-15/electric-car-era-threatens-firefighters-with-new-roadside-risks>

<http://www.businessinsider.com/tesla-model-s-crash-that-killed-two-teens-being-investigated-by-ntsb-2018-5>

<https://www.reuters.com/article/us-swiss-tesla-crash/tesla-crash-may-have-triggered-battery-fire-swiss-firefighters-idUSKCN11F2WN>